

IN THE CLAIMS

Claim 1 (Original): A toner, comprising:

an agglomerate of particles comprising at least primary polymer particles and primary colorant particles, and at least one layer of a particulate resin coated on a substantial surface portion of said agglomerate of particles,

wherein at least one of said primary polymer particles and said particulate resin further comprises a wax, and wherein an outermost layer of said particulate resin is substantially free of wax.

Claim 2 (Currently Amended): The toner as claimed in claim 1, wherein the primary polymer particles comprise ~~[[a]]~~ said wax therein.

Claim 3 (Original): The toner as claimed in claim 1, wherein said at least one layer of particulate resin is a single layer of particulate resin substantially free of wax.

Claim 4 (Original): The toner as claimed in claim 1, wherein there are at least two layers of said particulate resin.

Claim 5 (Currently Amended): The toner as claimed in claim 4, wherein the primary polymer particles comprise ~~[[a]]~~ said wax therein.

Claim 6 (Currently Amended): The toner as claimed in claim 4, wherein the primary polymer particles do not comprise wax therein, and at least one non-outer layer of the particulate resin ~~also~~ comprises ~~[[a]]~~ said wax therein.

Claim 7 (Original): The toner as claimed in claim 1, wherein two layers, an inner layer and an outer layer, of the particulate resin are coated on said agglomerate of particles.

Claim 8 (Currently Amended): The toner as claimed in claim 7, wherein the primary polymer particles do not comprise wax therein, the particulate resin in the inner layer comprises [[a]] said wax therein, and the particulate resin in the outer layer is substantially free of wax.

Claim 9 (Currently Amended): The toner as claimed in claim 7, wherein the primary polymer particles comprise [[a]] said wax therein, the particulate resin in the inner layer also comprises [[a]] said wax therein, and the particulate resin in the outer layer is substantially free of wax.

Claim 10 (Original): The toner as claimed in claim 1, wherein the primary polymer particles are obtained by emulsion polymerization using a particulate wax as seed.

Claim 11 (Original): The toner as claimed in claim 1, wherein at least one non-outer layer of the particulate resin comprises wax therein and is obtained by emulsion polymerization using particulate wax as seed.

Claim 12 (Original): The toner as claimed in claim 10, wherein the particulate wax as seed has a volume-average particle diameter of from 0.01 to 3 μm .

Claim 13 (Original): The toner as claimed in claim 11, wherein the particulate wax as seed has a volume-average particle diameter of from 0.01 to 3 μm .

Claim 14 (Original): The toner as claimed in claim 1, wherein the primary polymer particles have a volume-average particle diameter of from 0.02 to 3 μm .

Claim 15 (Original): The toner as claimed in claim 1, wherein the particulate resin has a volume-average particle diameter of from 0.02 to 3 μm .

Claim 16 (Original): The toner as claimed in claim 1, wherein the primary polymer particles comprise units from a monomer having a Brönsted acidic group or a Brönsted basic group.

Claim 17 (Original): The toner as claimed in claim 1, wherein the particulate resin comprises units from a monomer having a Brönsted acidic group or a Brönsted basic group.

Claim 18 (Currently Amended): The toner as claimed in claim 1, wherein the primary polymer particles comprise from 1 to 40 parts by weight of [[a]] said wax therein based on 100 parts by weight of binder resin in the toner.

Claim 19 (Original): The toner as claimed in claim 1, wherein the particulate resin of a non-outer layer comprises from 1 to 40 parts by weight of wax therein based on 100 parts by weight of binder resin in the toner.

Claim 20 (Original): The toner as claimed in claim 1, wherein the primary polymer particles have a THF insolubles content of from 15% to 80% by weight.

Claim 21 (Original): The toner as claimed in claim 1, wherein the primary polymer particles are crosslinked by incorporation therein of a polyfunctional monomer in an amount of from 0.005 to 5% by weight.

Claim 22 (Original): The toner as claimed in claim 1, wherein the particulate resin has a THF insolubles content of from 5% to 70% by weight.

Claim 23 (Original): The toner as claimed in claim 1, wherein the particulate resin is crosslinked with a polyfunctional monomer, wherein said polyfunctional monomer is present in an amount of from 0.005 to 5% by weight.

Claim 24 (Original): The toner as claimed in claim 1, wherein the agglomerate of particles has a volume-average particle diameter of from 2 to 11 μm .

Claim 25 (Original): The toner as claimed in claim 1, wherein the toner has a volume-average particle diameter of from 3 to 12 μm .

Claim 26 (Original): The toner as claimed in claim 3, wherein the agglomerate of particles and the particulate resin coating the agglomerate are present in a ratio by weight (weight of the agglomerate of particles/weight of the particulate resin) of from 1 to 100.

Claim 27 (Previously Presented): A toner comprising:
a binder resin and a particulate wax, wherein the toner has a volume-average particle diameter of from 3 to 12 μm , and a half value width of a number-average particle diameter of particulate wax contained therein, when a cross section of the toner is observed, of 0.06 μm

or less, and wherein a distribution of particulate wax having an average particle diameter of 0.01 μm or more throughout the toner satisfies the following equation:

$$(A/B)/(C/D) \leq 0.1$$

wherein A is total area of particulate wax contained in an outermost layer of the toner to a depth of 0.1 μm ;

B is total area of said outermost layer of the toner;

C is total area of particulate wax contained in a remainder of the toner (at a depth of greater than 0.1 μm from the surface of the toner); and

D is total area of said remainder of the toner,

wherein all areas are measured as observed in a cross section of said toner through a center point of said toner, and

wherein the toner has a 50% circular degree of from 0.95 to 1.

Claim 28 (Previously Presented): The toner as claimed in claim 27, wherein at a depth of 0.1-1 μm from the surface of the toner, the particulate wax having a particle diameter of 0.01 μm or more is present.

Claim 29 (Original): The toner as claimed in claim 27, wherein the toner has a volume-average particle diameter of from 4 to 10 μm .

Claim 30 (Original): The toner as claimed in claim 27, wherein the particulate wax in the toner has a volume-average particle diameter of from 0.01 to 2 μm .

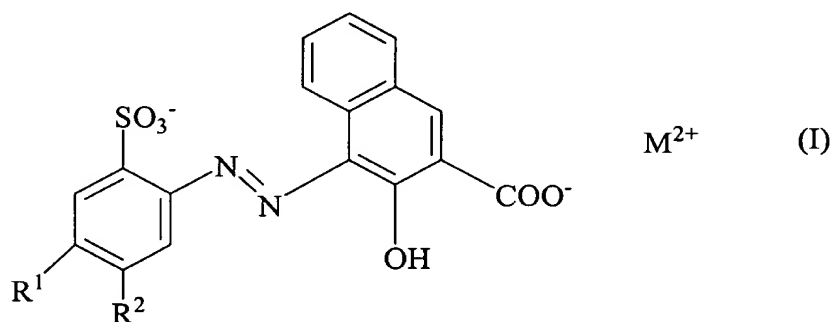
Claim 31 (Original): The toner as claimed in claim 1, wherein the wax has a melting point of 30 to 100°C.

Claim 32 (Original): The toner as claimed in claim 27, wherein the particulate wax has a melting point of 30 to 100°C.

Claim 33 (Original): The toner as claimed in claim 1, wherein the wax is present in an amount of from 1 to 35 parts by weight to 100 parts by weight of binder resin.

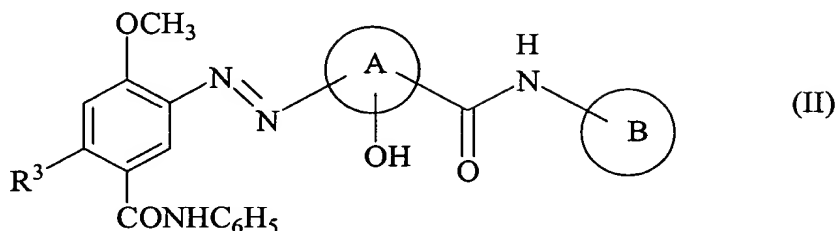
Claim 34 (Original): The toner as claimed in claim 27, wherein the particulate wax is present in an amount of from 1 to 35 parts by weight to 100 parts by weight of binder resin.

Claim 35 (Original): The toner as claimed in claim 1, wherein the toner comprises a colorant compound represented by the following formula (I):



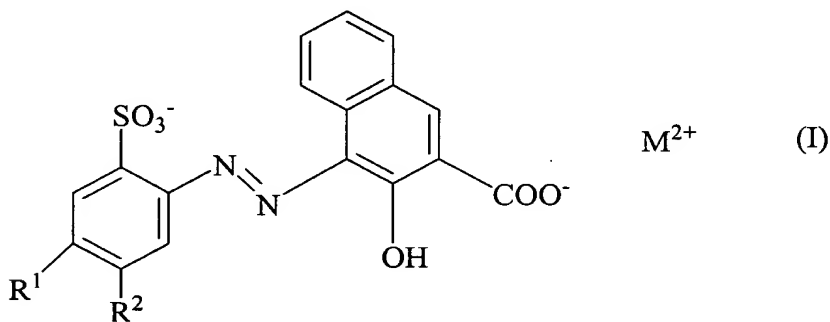
wherein R^1 and R^2 each independently represents a hydrogen atom, an alkyl group or a halogen atom, at least one of R^1 and R^2 is a halogen atom, and M represents Ba, Sr, Mn, Ca or Mg.

Claim 36 (Original): The toner as claimed in claim 1, wherein the toner comprises a colorant compound represented by the following formula (II):



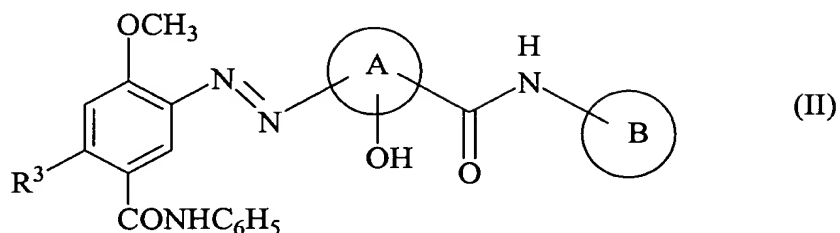
wherein A and B each, independently, represents an aromatic ring which may be substituted, R^3 represents a hydrogen atom, a halogen atom, a nitro group, a cyano group, a hydrocarbon group having 1 to 5 carbon atoms, an alkoxy group having 1 to 5 carbon atoms, an aminosulfonyl group wherein the nitrogen atom may be substituted or an aminocarbonyl group wherein the nitrogen atom may be substituted.

Claim 37 (Original): The toner as claimed in claim 27, wherein the toner comprises a colorant compound represented by the following formula (I):



wherein R^1 and R^2 each independently represents a hydrogen atom, an alkyl group or a halogen atom, at least one of R^1 and R^2 is a halogen atom, and M represents Ba, Sr, Mn, Ca or Mg.

Claim 38 (Original): The toner as claimed in claim 27, wherein the toner comprises a colorant compound represented by the following formula (II):



wherein A and B each, independently, represents an aromatic ring which may be substituted, R^3 represents a hydrogen atom, a halogen atom, a nitro group, a cyano group, a hydrocarbon group having 1 to 5 carbon atoms, an alkoxy group having 1 to 5 carbon atoms, an aminosulfonyl group wherein the nitrogen atom may be substituted or an aminocarbonyl group wherein the nitrogen atom may be substituted.

Claim 39 (Original): The toner as claimed in claim 1, wherein the toner is negatively charged.

Claim 40 (Original): The toner as claimed in claim 27, wherein the toner is negatively charged.

Claim 41 (Original): The toner as claimed in claim 1, wherein the toner has a ratio of volume-average particle diameter to number-average particle diameter (volume-average particle diameter/number-average particle diameter) of from 1 to 1.25.

Claim 42 (Original): The toner as claimed in claim 27, wherein the toner has a ratio of volume-average particle diameter to number-average particle diameter (volume-average particle diameter/number-average particle diameter) of from 1 to 1.25.

Claim 43 (Original): The toner as claimed in claim 1, wherein the toner has a 50% circular degree of from 0.95 to 1.

Claim 44 (Canceled).

Claim 45 (Original): The toner as claimed in claim 1, wherein the toner has a volume-average particle diameter of from 7 to 10 μm , and a proportion of the toner having a particle diameter of 5 μm or less is 10% by volume or less.

Claim 46 (Original): The toner as claimed in claim 1, wherein the toner has a volume-average particle diameter of from 7 to 10 μm , and a proportion of the toner having a particle diameter of 15 μm or more is 5% by volume or less.

Claim 47 (Original): A process for producing a toner comprising: agglomerating at least primary polymer particles and primary colorant particles to form an agglomerate of particles, then coating at least a substantial surface portion of said agglomerate of particles with at least one layer of a particulate resin, wherein the primary polymer particles are obtained by seed emulsion polymerization of a monomer mixture in the presence of a particulate wax, and an outermost layer of the particulate resin is substantially free of wax.

Claim 48 (Original): The process as claimed in claim 47, wherein between said agglomerating step and said coating of particulate resin step, said agglomerate of particles is coated with a layer of a particulate charge control agent.

Claim 49 (Original): The process as claimed in claim 47, wherein the particulate resin has a volume-average particle diameter of from 0.02 to 3 μm .

Claim 50 (Original): The process as claimed in claim 47, wherein said coating step is performed at least twice to provide at least two layers of particulate resin on said agglomerate of particles, wherein the particulate resin of an innermost layer is obtained by seed emulsion polymerization of a monomer mixture in the presence of a particulate wax.

Claim 51 (Original): The process as claimed in claim 47, wherein the primary polymer particles are obtained by seed emulsion polymerization of a monomer mixture in the presence of a particulate wax, and said particulate resin is substantially free of wax.

Claim 52 (Original): The process as claimed in claim 47, wherein two layers, an inner layer and an outer layer, of particulate resin are coated in said coating step, wherein the primary polymer particles are obtained by seed emulsion polymerization of a monomer mixture in the presence of a particulate wax, wherein the particulate resin of the inner layer is obtained by seed emulsion polymerization of a monomer mixture in the presence of a particulate wax, and the particulate resin of the outer layer is substantially free of wax.

Claim 53 (Original): The process as claimed in claim 47, wherein two layers, an inner layer and an outer layer, of particulate resin are coated on the agglomerate of particles, wherein the primary polymer particles are substantially free of wax, the particulate resin of the inner layer is obtained by seed emulsion polymerization of a monomer mixture in the presence of a particulate wax, and the particulate resin of the outer layer is substantially free of wax.

Claim 54 (Original): The process as claimed in claim 47, wherein the primary polymer particles are obtained from a monomer mixture comprising a compound having a Brönsted acidic group or a Brönsted basic group.

Claim 55 (Original): The process as claimed in claim 51, wherein after said coating step is an aging step wherein said agglomerate of particles and particulate resin substantially free of wax are fusion bonded to one another by heating at a temperature range of from a glass transition temperature of a binder resin constituting the agglomerate of particles (T_g) to $T_g + 80^\circ\text{C}$.

Claim 56 (Original): The process as claimed in claim 52, wherein said inner layer and said outer layer are coated onto said agglomerate of particles prior to an aging step, then after said coating an aging step is performed to fusion bond the agglomerate of particles and two layers of particulate resin to each other, by heating at a temperature range of from a glass transition temperature of a binder resin constituting the agglomerate of particles (T_g) to ($T_g + 80^\circ\text{C}$).

Claim 57 (Currently Amended): A toner comprising:

a binder resin ~~obtained by addition polymerization~~, and a particulate wax, wherein the toner has a volume-average particle diameter of from 3 to 12 μm , and a half value width of a number-average particle diameter of particulate wax contained therein, when a cross section of the toner is observed, of 0.06 μm or less, and wherein a distribution of particulate wax having an average particle diameter of 0.01 μm or more throughout the toner satisfies the following equation:

$$(A/B)/(C/D) \leq 0.1$$

wherein A is total area of particulate wax contained in an outermost layer of the toner to a depth of 0.1 μm ;

B is total area of said outermost layer of the toner;

C is total area of particulate wax contained in a remainder of the toner (at a depth of greater than 0.1 μm from the surface of the toner); and

D is total area of said remainder of the toner,

wherein all areas are measured as observed in a cross section of said toner through a center point of said toner.

Claim 58 (Previously Presented): The toner as claimed in claim 57, wherein at a depth of 0.1-1 μm from the surface of the toner, the particulate wax having a particle diameter of 0.01 μm or more is present.

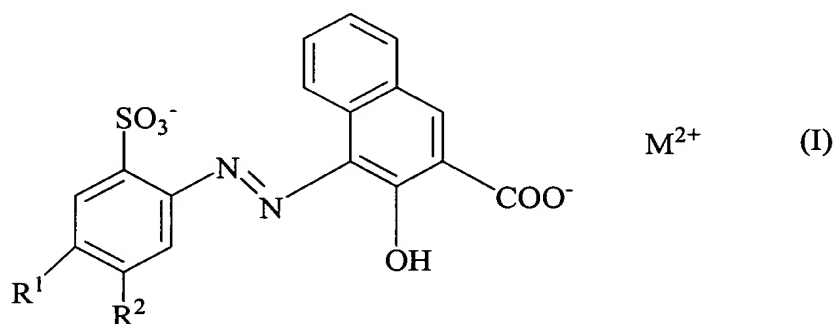
Claim 59 (Previously Presented): The toner as claimed in claim 57, wherein the toner has a volume-average particle diameter of from 4 to 10 μm .

Claim 60 (Previously Presented): The toner as claimed in claim 57, wherein the particulate wax in the toner has a volume-average particle diameter of from 0.01 to 2 μm .

Claim 61 (Previously Presented): The toner as claimed in claim 57, wherein the particulate wax has a melting point of 30 to 100°C.

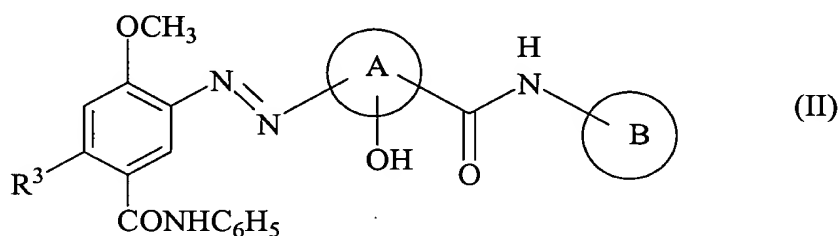
Claim 62 (Previously Presented): The toner as claimed in claim 57, wherein the particulate wax is present in an amount of from 1 to 35 parts by weight to 100 parts by weight of binder resin.

Claim 63 (Previously Presented): The toner as claimed in claim 57, wherein the toner comprises a colorant compound represented by the following formula (I):



wherein R^1 and R^2 each independently represents a hydrogen atom, an alkyl group or a halogen atom, at least one of R^1 and R^2 is a halogen atom, and M represents Ba, Sr, Mn, Ca or Mg.

Claim 64 (Previously Presented): The toner as claimed in claim 57, wherein the toner comprises a colorant compound represented by the following formula (II):



wherein A and B each, independently, represents an aromatic ring which may be substituted, R^3 represents a hydrogen atom, a halogen atom, a nitro group, a cyano group, a hydrocarbon group having 1 to 5 carbon atoms, an alkoxy group having 1 to 5 carbon atoms,

an aminosulfonyl group wherein the nitrogen atom may be substituted or an aminocarbonyl group wherein the nitrogen atom may be substituted.

Claim 65 (Previously Presented): The toner as claimed in claim 57, wherein the toner is negatively charged.

Claim 66 (Previously Presented): The toner as claimed in claim 57, wherein the toner has a ratio of volume-average particle diameter to number-average particle diameter (volume-average particle diameter/number-average particle diameter) of from 1 to 1.25.

Claim 67 (Previously Presented): The toner as claimed in claim 57, wherein the toner has a 50% circular degree of from 0.95 to 1.

Claim 68 (Currently Amended): A toner comprising:

a binder resin and a particulate wax, wherein the toner has a volume-average particle diameter of from 3 to 12 μm , and a half value width of a number-average particle diameter of particulate wax contained therein, when a cross section of the toner is observed, of 0.06 μm or less, and wherein a distribution of particulate wax having an average particle diameter of 0.01 μm or more throughout the toner satisfies the following equation:

$$(A/B)/(C/D) \leq 0.1$$

wherein A is total area of particulate wax contained in an outermost layer of the toner to a depth of 0.1 $[[\mu\text{m}]]$ μm ;

B is total area of said outermost layer of the toner;

C is total area of particulate wax contained in a remainder of the toner (at a depth of greater than 0.1 μm from the surface of the toner); and

D is total area of said remainder of the toner,
wherein all areas are measured as observed in a cross section of said toner through a center point of said toner,
and wherein said binder resin comprises an agglomerate of particles comprising at least primary polymer particles, and at least one layer of a particulate resin coated on a substantial surface portion of said agglomerate of particles.

Claim 69 (Previously Presented): The toner as claimed in claim 68, wherein said primary polymer particles comprise units from a monomer having a Brönsted acidic group or a Brönsted basic group.